10/000,039

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     (FILE 'HOME' ENTERED AT 15:15:43 ON 23 SEP 2004)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 15:16:03 ON 23 SEP 2004
L1            41 S "H-SGK"
L2            73 S "CELL VOLUME-REGULATED"
L3            42 S L2 AND KINASE?
L4            67 S L1 OR L3
L5       6711850 S CLON? OR EXPRESS? OR RECOMBINANT
L6            58 S L4 AND L5
L7            24 DUP REM L6 (34 DUPLICATES REMOVED)
                 E LANG F/AU
L8          3294 S E3
                 E WALDEGGER S/AU
L9           512 S E3-E7
L10         3485 S L8 OR L9
L11           52 S L4 AND L10
L12           21 DUP REM L11 (31 DUPLICATES REMOVED)

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                   resulting in a closer connection to BABS
 NEWS  4  Jul 30   BEILSTEIN on STN workshop to be held August 24 in conjunction
                   with the 228th ACS National Meeting
 NEWS  5  AUG 02   IFIPAT/IFIUDB/IFICDB reloaded with new search and display
                   fields
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                   Patent Office Classifications
 NEWS  7  AUG 02   The Analysis Edition of STN Express with Discover!
                   (Version 7.01 for Windows) now available
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                   STN Express with Discover! will change September 1, 2004
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 NEWS 10  AUG 27   BIOTECHABS/BIOTECHDS: Two new display fields added for legal
                   status data from INPADOC
 NEWS 11  SEP 01   INPADOC: New family current-awareness alert (SDI) available
 NEWS 12  SEP 01   New pricing for the Save Answers for SciFinder Wizard within
                   STN Express with Discover!
 NEWS 13  SEP 01   New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
 NEWS 14  SEP 14   STN Patent Forum to be held October 13, 2004, in Iselin, NJ

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               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
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FILE 'LIFESCI' ENTERED AT 15:16:03 ON 23 SEP 2004
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=> s "h-sgk"
L1 41 "H-SGK"

=> s "cell volume-regulated"
5 FILES SEARCHED...
L2 73 "CELL VOLUME-REGULATED"

=> s l2 and kinase?
L3 42 L2 AND KINASE?

=> s l1 or l3
L4 67 L1 OR L3

=> s clon? or express? or recombinant
5 FILES SEARCHED...
L5 6711850 CLON? OR EXPRESS? OR RECOMBINANT

=> s l4 and l5
L6 58 L4 AND L5

=> dup rem l6
PROCESSING COMPLETED FOR L6
L7 24 DUP REM L6 (34 DUPLICATES REMOVED)

=> d 1-24 ibib ab

L7 ANSWER 1 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2003:198707 SCISEARCH
THE GENUINE ARTICLE: 648BF
TITLE: **Expression** of the serum- and glueocorticoid-inducible protein kinase, Sgk, is a cell survival response to multiple types of environmental stress stimuli in mammary epithelial cells

AUTHOR: Leong M L L; Maiyar A C; Kim B; O'Keeffe B A; Firestone G L (Reprint)
CORPORATE SOURCE: Univ Calif Berkeley, Dept Mol & Cell Biol, 591 LSA, Berkeley, CA 94720 USA (Reprint); Univ Calif Berkeley, Dept Mol & Cell Biol, Berkeley, CA 94720 USA; Univ Calif Berkeley, Canc Res Lab, Berkeley, CA 94720 USA
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (21 FEB 2003) Vol. 278, No. 8, pp. 5871-5882.
Publisher: AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814-3996 USA.
ISSN: 0021-9258.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 86

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The effects of multiple stress stimuli on the cellular utilization of the serum- and glucocorticoid-inducible protein kinase (Sgk) were examined in NMuMg mammary epithelial cells exposed to hyperosmotic stress induced by the organic osmolyte sorbitol, heat shock, ultraviolet irradiation, oxidative stress induced by hydrogen peroxide, or to dexamethasone, a synthetic glucocorticoid that represents a general class of physiological stress hormones. Each of the stress stimuli induced Sgk protein **expression** with differences in the kinetics and duration of induction and in subcellular localization. The environmental stresses, but not dexamethasone, stimulated Sgk **expression** through a p38/MAPK-dependent pathway. In each case, a hyperphosphorylated active Sgk protein was produced under conditions in which Akt, the close homolog of Sgk, remained in its non-phosphorylated state. Ectopic **expression** of wild type Sgk or of the T256D/S422D mutant Sgk that mimics phosphorylation conferred protection against stress-induced cell death in NMuMg cells. In contrast, **expression** of the T256A/S422A Sgk phosphorylation site mutant has no effect on cell survival. Sgk is known to phosphorylate and negatively regulate proapoptotic forkhead transcription factor FKHRL1. The environmental stress stimuli that induce Sgk, but not dexamethasone, strongly inhibited the nuclear transcriptional activity and increased the cytoplasmic retention of FKHRL1. Also, the conditional IPTG inducible **expression** of wild type Sgk, but not of the kinase dead T256A mutant Sgk, protected Con8 mammary epithelial tumor cells from serum starvation-induced apoptosis. Taken together, our study establishes that induction of enzymatically active Sgk functions as a key cell survival component in response to different environmental stress stimuli.

L7 ANSWER 2 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2003:401550 SCISEARCH
THE GENUINE ARTICLE: 674VM
TITLE: Stimulus-dependent regulation of serum and glucocorticoid inducible protein kinase (SGK) transcription, subcellular localization and enzymatic activity
AUTHOR: Firestone G L (Reprint); Giampaolo J R; O'Keeffe B A
CORPORATE SOURCE: Univ Calif Berkeley, Dept Mol & Cell Biol, 591 LSA, Berkeley, CA 94720 USA (Reprint); Univ Calif Berkeley, Dept Mol & Cell Biol, Berkeley, CA 94720 USA; Univ Calif Berkeley, Canc Res Lab, Berkeley, CA 94720 USA
COUNTRY OF AUTHOR: USA
SOURCE: CELLULAR PHYSIOLOGY AND BIOCHEMISTRY, (APR 2003) Vol. 13, No. 1, pp. 1-12.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1015-8987.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English

REFERENCE COUNT: 79

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We originally discovered the serum and glucocorticoid inducible protein kinase, SGK, as a novel protein kinase that is under acute transcriptional control by serum and glucocorticoids. An expanding set of cell surface receptor, nuclear receptor, and cellular stress pathways has been shown to target SGK, which has implicated this regulated signaling molecule in a variety of biological functions. Compared to most other protein kinases, a distinguishing feature of SGK is the stringent stimulus-dependent regulation of its transcription, subcellular localization and enzymatic activity. In addition, SGK **expression** is regulated during discrete developmental stages, and during normal and abnormal physiological function. An analysis of the SGK promoter reveals many potential transcription factor sites that potentially account for the stimulus-dependent changes in SGK transcript **expression** observed in a variety of cell systems, although, the direct stimulus regulation of SGK promoter activity has been established only for glucocorticoids, p53 tumor suppressor protein, hyperosmotic stress and follicle stimulating hormone. In the systems tested to date, hormones, growth factors and environmental cues induce **expression** of a catalytically active SGK. It is now well established that the enzymatic activity of SGK is controlled by the PI 3-kinase cascade which produces a hyperphosphorylated active SGK. A critical third level of regulation is the stimulus-dependent control of SGK subcellular localization. The nuclear-cytoplasmic shuttling of SGK is regulated by a nuclear localization signal (NLS) that binds to the importin-alpha nuclear import receptor. Modeling of the 3-D structure of the central region of SGK that includes the kinase domain predicts that the MLS is located at an external surface of the molecule. Thus, multiple signal transduction pathways converge on SGK to control its availability, function and access to its substrates and nonsubstrate targets. Copyright (C) 2003 S. Karger AG, Basel.

L7 ANSWER 3 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2002:246823 SCISEARCH

THE GENUINE ARTICLE: 530ND

TITLE: Cerebral localization and regulation of the cell volume-sensitive serum- and glucocorticoid-dependent kinase SGK1

AUTHOR: Warntges S; Friedrich B; Henke G; Duranton C; Lang P A; Waldegger S; Meyermann R; Kuhl D; Speckmann E J; Obermuller N; Witzgall R; Mack A F; Wagner H J; Wagner C A; Broer S; Lang F (Reprint)

CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol, D-72076 Tubingen, Germany; Univ Tubingen, Dept Brain Res, D-72076 Tubingen, Germany; Univ Hamburg, Zentrum Mol Neurobiol, Hamburg, Germany; Univ Munster, Dept Physiol, D-4400 Munster, Germany; Univ Heidelberg, Dept Anat, D-6900 Heidelberg, Germany; Univ Tubingen, Dept Anat, D-72076 Tubingen, Germany; Yale Univ, Dept Cellular & Mol Physiol, New Haven, CT USA

COUNTRY OF AUTHOR: Germany; USA

SOURCE: PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY, (FEB 2002) Vol. 443, No. 4, pp. 617-624.
Publisher: SPRINGER-VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010 USA.
ISSN: 0031-6768.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 42

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The serum- and glucocorticoid-dependent kinase SGK1 is regulated by alterations of cell volume, whereby cell shrinkage increases and cell

swelling decreases the transcription, **expression** and activity of SGK1. The kinase is **expressed** in all human tissues studied including the brain. The present study was performed to localize the sites of SGK1 transcription in the brain, to elucidate the influence of the hydration status on SGK1 transcription and to explore the functional significance of altered SGK1 **expression**. Northern blot analysis of human brain showed SGK1 to be **expressed** in all cerebral structures examined: amygdala, caudate nucleus, corpus callosum, hippocampus, substantia nigra, subthalamic nucleus and thalamus. In situ hybridization and immunohistochemistry in the rat revealed increased **expression** of SGK1 in neurons of the hippocampal area CA3 after dehydration, compared with similar slices from brains of euvolaemic rats. Additionally, several oligodendrocytes, a few microglial cells, but no astrocytes, were positive for SGK1. The abundance of SGK1 mRNA in the temporal lobe, including hippocampus, was increased by dehydration and SGK1 transcription in neuroblastoma cells was stimulated by an increase of extracellular osmolarity. Co-**expression** studies in Xenopus laevis oocytes revealed that SGK1 markedly increased the activity of the neuronal K+ channel Kv1.3. As activation of K+ channels modifies excitation of neuronal cells, SGK1 may participate in the regulation of neuronal excitability.

L7 ANSWER 4 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2003:241577 SCISEARCH
THE GENUINE ARTICLE: 654HJ
TITLE: Activation of Na+/K+-ATPase by the serum and glucocorticoid-dependent kinase isoforms
AUTHOR: Henke G; Setiawan I; Bohmer C; Lang F (Reprint)
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol, D-72076 Tubingen, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: KIDNEY & BLOOD PRESSURE RESEARCH, (DEC 2002) Vol. 25, No. 6, pp. 370-374.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1420-4096.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 49

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Background/Aim: **Expression** of the constitutively active form of serum and glucocorticoid-dependent kinase ((S422D)SGK1) in Xenopus oocytes has recently been shown to upregulate endogenous Na+/K+-ATPase activity, an effect presumably participating in the regulation of cellular K+ uptake and transepithelial Na+ transport. SGK1 and the two isoforms SGK2 and SGK3 are stimulated by insulin and insulin-like growth factor-1 (IGF-1), which have been shown to enhance Na+/K+-ATPase activity in a variety of cells. The present experiments have been performed to elucidate whether or not wild-type SGK1, SGK2 and SGK3 are similar to (S422D)SGK1 in being effective regulators of Na+/K+-ATPase. Methods: To this end, dual-electrode voltage clamp experiments were performed in Xenopus oocytes injected either with water or with mRNA of constitutively active (S422D)SGK1 and wild-type SGK1, SGK2 or SGK3. Na+/K+-ATPase activity was estimated from the outward-directed current created by readdition of extracellular K+ in the presence of K+ channel blocker Ba2+ following a 10-min exposure to K+-free extracellular fluid. Results: The outward-directed current was fully abolished by incubation with 1 mM ouabain and was significantly larger in oocytes **expressing** (S422D)SGK1, SGK1, SGK2 or SGK3, as compared to those injected with water. Conclusion: The stimulating effect of SGK1 on the Xenopus oocyte Na+/K+-ATPase is mimicked by the isoforms SGK2 and SGK3. Thus, all three kinases may participate in the regulation of Na+/K+-ATPase activity by

hormones such as insulin and IGF-1. Copyright (C) 2002 S. Karger AG, Basel.

L7 ANSWER 5 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2002:289276 SCISEARCH
THE GENUINE ARTICLE: 536XJ
TITLE: **Expression** of the serine/threonine kinase hSGK1 in chronic viral hepatitis
AUTHOR: Fillon S; Klingel K; Warntges S; Sauter M; Gabrysch S; Pestel S; Tanneur V; Waldegger S; Zipfel A; Viebahn R; Broer S; Kandolf R; Lang F (Reprint)
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Dept Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol, Dept Physiol, D-72076 Tubingen, Germany; Univ Tubingen, Dept Mol Pathol, D-72076 Tubingen, Germany; Univ Dusseldorf, Dept Internal Med, D-4000 Dusseldorf, Germany; Univ Tubingen, Dept Surg, D-72076 Tubingen, Germany; Australian Natl Univ, Sch Biochem & Mol Biol, Canberra, ACT, Australia
COUNTRY OF AUTHOR: Germany; Australia
SOURCE: CELLULAR PHYSIOLOGY AND BIOCHEMISTRY, (DEC 2002) Vol. 12, No. 1, pp. 47-54.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1015-8987.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 37

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The human serine/threonine kinase hSGK1 is **expressed** ubiquitously with highest transcript levels in pancreas and liver. This study has been performed to determine the hSGK1 distribution in normal liver and its putative role in fibrosing liver disease. HSGK1-localization was determined by in situ hybridization, regulation of hSGK1-transcription by Northern blotting, fibronectin synthesis and hSGK1 phosphorylation by Western blotting. In normal liver hSGK1 was mainly transcribed by Kupffer cells. In liver tissue from patients with chronic viral hepatitis, hSGK1 transcript levels were excessively high in numerous activated Kupffer cells and inflammatory cells localized within fibrous septum formations. HSGK1 transcripts were also detected in activated hepatic stellate cells. Accordingly, Western blotting revealed that tissue from fibrotic liver **expresses** excessive hSGK1 protein as compared to normal liver. TGF-beta1 (2 ng/ml) increases hSGK1 transcription in both human U937 macrophages and HepG2 hepatoma cells. H2O2 (0.3 mM) activated hSGK1 and increased fibronectin formation in HepG2 cells overexpressing hSGK1 but not in HepG2 cells **expressing** the inactive mutant hSGK1(K127R). In conclusion hSGK1 is upregulated by TGF-beta1 during hepatitis and may contribute to enhanced matrix formation during fibrosing liver disease. Copyright (C) 2002 S. Karger AG, Basel.

L7 ANSWER 6 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2002:74113 BIOSIS
DOCUMENT NUMBER: PREV200200074113
TITLE: **Cell volume-regulated** human **kinase h-sgk.**
AUTHOR(S): Lang, Florian [Inventor, Reprint author]; Waldegger, Siegfried [Inventor]
CORPORATE SOURCE: Im Rotbad 52, 72076 Tubingen, Germany
PATENT INFORMATION: US 6326181 December 04, 2001
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Dec. 4, 2001) Vol. 1253, No. 1. ftp://ftp.uspto.gov/pub/patdata/. e-file.

CODEN: OGUPE7. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English
ENTRY DATE: Entered STN: 16 Jan 2002
Last Updated on STN: 25 Feb 2002

AB The present invention relates to the **cloning** and characterization of a human serine/threonine **kinase** (**h-sgk**: serum and glucocorticoid dependent **kinase**). The invention furthermore relates to reagents for diagnosing conditions associated with a change in cell volume and/or in "macromolecular crowding" in the body, such as, for example, hypernatremia, hyponatremia, diabetes mellitus, renal failure, hypercatabolism, hepatic encephalopathy, inflammation and microbial or viral infections. The present invention additionally relates to pharmaceuticals comprising the **h-sgk**, nucleic acids which code for the **h-sgk**, or receptors, in particular antibodies, which specifically bind to the **h-sgk**.

L7 ANSWER 7 OF 24 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2002179776 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11913450
TITLE: Serum- and glucocorticoid-dependent **kinase**, cell volume, and the regulation of epithelial transport.
AUTHOR: Fillon S; Warntges S; Matskevitch J; Moschen I; Setiawan I; Gamper N; Feng Y X; Stegen C; Friedrich B; Waldegger S; Broer S; Wagner C A; Huber S M; Klingel K; Vereninov A; Lang F
CORPORATE SOURCE: Department of Physiology, University of Tubingen, Germany.
SOURCE: Comparative biochemistry and physiology. Part A, Molecular & integrative physiology, (2001 Oct) 130 (3) 367-76. Ref: 99
Journal code: 9806096. ISSN: 1095-6433.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200204
ENTRY DATE: Entered STN: 20020401
Last Updated on STN: 20020614
Entered Medline: 20020418

AB Ample pharmacological evidence points to a role of **kinases** in the regulation of cell volume. Given the limited selectivity of most inhibitors, however, the specific molecules involved have remained largely elusive. The search for **cell volume regulated** genes in liver HepG2 cells led to the discovery of the human serum- and glucocorticoid-dependent serine/threonine **kinase** hsgk1. Transcription and **expression** of hsgk1 is markedly and rapidly upregulated by osmotic and isotonic cell shrinkage. The effect of osmotic cell shrinkage on hsgk1 is mediated by p38 **kinase**. Further stimuli of hsgk1 transcription include glucocorticoids, aldosterone, TGF-beta1, serum, increase of intracellular Ca2+ and phorbolesters, whereas cAMP downregulates hsgk1 transcription. The hsgk1 protein is **expressed** in several epithelial tissues including human pancreas, intestine, kidney, and shark rectal gland. Co-**expression** of hsgk1 with the renal epithelial Na+-channel ENaC or the Na+/K+/2Cl(-)-cotransporter NKCC2 (BSC1) in Xenopus oocytes, accelerates insertion of the transport proteins into the cell membrane and thus, stimulates channel or transport activity. Thus, hsgk1 participates in the regulation of transport by steroids and secretagogues increasing intracellular Ca2+-activity. The stimulation of hsgk1 transcription by TGF-beta1 may further bear pathophysiological relevance.

L7 ANSWER 8 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2001:922107 SCISEARCH
THE GENUINE ARTICLE: 490MJ
TITLE: Cell volume regulatory mechanisms in progression of renal disease
AUTHOR: Warntges S; Grone H J; Capasso G; Lang F (Reprint)
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-76072 Tubingen, Germany (Reprint); Univ Tubingen, Dept Physiol, Tubingen, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: JOURNAL OF NEPHROLOGY, (SEP-OCT 2001) Vol. 14, No. 5, pp. 319-326.
Publisher: WICHTIG EDITORE, 72/74 VIA FRIULI, 20135 MILAN, ITALY.
ISSN: 1121-8428.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English
REFERENCE COUNT: 125

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB One of the striking morphological features of renal failure is an increase of cell volume. This review explores the role of cell volume regulatory mechanisms in the pathophysiology of progressive renal disease. The case is made that TGF-beta, a major cytokine involved in the development of progressive renal failure, upregulates the transcription of the serum and glucocorticoid-dependent kinase hSGK1,involved in cell volume regulation. Excessive extracellular glucose concentrations stimulate TGF-beta1 **expression** and thus similarly enhance hSGK1-transcription. The kinase stimulates two mechanisms important for cell volume regulation, i.e. the renal epithelial Na+ channel ENaC and the thick ascending limb Na+,K+,2Cl(-) cotransporter BSC1. On the one hand, stimulation of renal tubular transport leads to renal retention of Na+, which favours the development of hypertension. On the other, the increase of cell volume stimulates protein synthesis and inhibits protein degradation, contributing to the enhanced net formation and deposition of matrix proteins. At later stages, the increase of cell volume may be reversed to atrophy, and cell death may lead to loss of functional tissue. In conclusion, progressive renal disease is paralleled by deranged cell volume regulatory mechanisms.

L7 ANSWER 9 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2001:244741 BIOSIS
DOCUMENT NUMBER: PREV200100244741
TITLE: All three isoforms of human serum and glucocorticoid dependent kinase (**h-SGK**) upregulate voltage-gated potassium channels endogenously **expressed** in HEK293 cells.
AUTHOR(S): Fillon, S. [Reprint author]; Gamper, N. [Reprint author]; Huber, S. M. [Reprint author]; Feng, Y. X. [Reprint author]; Friedrich, B. [Reprint author]; Kobayashi, T.; Cohen, P.; Lang, F. [Reprint author]
CORPORATE SOURCE: Institute of Physiology, University of Tuebingen, Tuebingen, Germany
SOURCE: Pfluegers Archiv European Journal of Physiology, (2001) Vol. 441, No. 6 Supplement, pp. R182. print.
Meeting Info.: Joint Congress of the Scandinavian and the German Physiological Societies. Berlin, Germany. March 10-13, 2001.
CODEN: PFLABK. ISSN: 0031-6768.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)
LANGUAGE: English

ENTRY DATE: Entered STN: 23 May 2001
Last Updated on STN: 19 Feb 2002

L7 ANSWER 10 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2001:358201 BIOSIS
DOCUMENT NUMBER: PREV200100358201
TITLE: Association between inflammation and **expression** of human serine threonine kinase (**h-sgk**) in fetal and neonatal lung tissue.
AUTHOR(S): Speer, Christian P. [Reprint author]; Schmidt, Beate [Reprint author]; Cao, Lei [Reprint author]; Klingel, Karin; Mackensen-Haen, Susanne; Lang, Florian
CORPORATE SOURCE: University Children's Hospital, Wuerzburg, Germany
SOURCE: Biology of the Neonate, (May, 2001) Vol. 80, No. Supplement 1, pp. 35. print.
Meeting Info.: Proceedings of the 16th International Workshop on Surfactant Replacement. Edinburgh, Scotland. June 02-04, 2001.
CODEN: BNEOBV. ISSN: 0006-3126.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 2 Aug 2001
Last Updated on STN: 19 Feb 2002

L7 ANSWER 11 OF 24 LIFESCI COPYRIGHT 2004 CSA on STN
ACCESSION NUMBER: 2002:78612 LIFESCI
TITLE: **Cell volume-regulated** human **kinase h-sgk**
AUTHOR: Lang, F.; Waldegger, S.
SOURCE: (20011204) . US Patent: 6326181; US CLASS: 435/194; 424/94.5.
DOCUMENT TYPE: Patent
FILE SEGMENT: W3
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The present invention relates to the **cloning** and characterization of a human serine/threonine **kinase** (**h-sgk**: serum and glucocorticoid dependent **kinase**). The invention furthermore relates to reagents for diagnosing conditions associated with a change in cell volume and/or in "macromolecular crowding" in the body, such as, for example, hypernatremia, hyponatremia, diabetes mellitus, renal failure, hypercatabolism, hepatic encephalopathy, inflammation and microbial or viral infections. The present invention additionally relates to pharmaceuticals comprising the **h-sgk**, nucleic acids which code for the **h-sgk**, or receptors, in particular antibodies, which specifically bind to the **h-sgk**.

L7 ANSWER 12 OF 24 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:756527 HCAPLUS
DOCUMENT NUMBER: 133:325643
TITLE: Antifibrotic formulations containing inhibitors of **cell-volume-regulated** human **kinase h-sgk**
INVENTOR(S): Lang, Florian; Waldegger, Siegfried; Wagner, Carsten; Broer, Stefan; Klingel, Karin
PATENT ASSIGNEE(S): Germany
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000062781	A1	20001026	WO 2000-EP3578	20000419
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19917990	A1	20001102	DE 1999-19917990	19990420
BR 2000009914	A	20020108	BR 2000-9914	20000419
EP 1171131	A1	20020116	EP 2000-922655	20000419
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002542196	T2	20021210	JP 2000-611917	20000419
NO 2001005054	A	20011214	NO 2001-5054	20011017
ZA 2001008610	A	20020102	ZA 2001-8610	20011019

PRIORITY APPLN. INFO.: DE 1999-19917990 A 19990420
WO 2000-EP3578 W 20000419

AB The invention relates to medicaments which contain inhibitors or activators of **cell-vol.-regulated** human serum and glucocorticoid-dependent **kinase h-sgk**, a serine-threonine **kinase**. Medicaments of this type containing staurosporin or chelerythrine are suitable for treating conditions, such as fibrosis, in which an increased or reduced **expression** of **h-sgk** is identified.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 13 OF 24 MEDLINE on STN DUPLICATE 2

ACCESSION NUMBER: 2001034894 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11052997
TITLE: **Expression** of **cell volume-regulated kinase h-sgk** in pancreatic tissue.
AUTHOR: Klingel K; Warntges S; Bock J; Wagner C A; Sauter M; Waldegger S; Kandolf R; Lang F
CORPORATE SOURCE: Department of Molecular Pathology, Institute of Pathology, University of Tubingen, D-72076, Tubingen, Germany.
SOURCE: American journal of physiology. Gastrointestinal and liver physiology, (2000 Nov) 279 (5) G998-G1002. Journal code: 100901227. ISSN: 0193-1857.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001130

AB Transcript levels of the human serine/threonine **kinase h-sgk** have been found to be highest in pancreas. In the present study, localization and regulation of **h-sgk** transcription in pancreatic tissue were elucidated. As was apparent from radioactive in situ hybridization, most pancreatic acinar cells **expressed** high levels of **h-sgk** mRNA. **h-sgk** mRNA-positive cells were also found in ductal epithelia but not in pancreatic islets. In biopsy specimens from patients with pancreatitis, **h-sgk** mRNA levels were decreased in

acinar cells but abundant in numerous mononuclear interstitial cells within areas of pancreatic necrosis and fibrosis. As shown by Northern blotting, **h-sgk** transcription in DAN-G pancreatic tumor cells is upregulated by osmotic cell shrinkage, serum, phorbol esters (phorbol 12,13-didecanoate), and Ca(2+) ionophore A-23187 and decreased by staurosporine and cAMP. In conclusion, **h-sgk** transcription is regulated not only by cell volume but also by serum, protein **kinase** C stimulation, cAMP, and increase of intracellular Ca(2+) activity. The **kinase** may participate not only in normal function of exocrine pancreas but also in fibrosing pancreatitis.

L7 ANSWER 14 OF 24 EMBASE
on STN DUPLICATE 3

ACCESSION NUMBER: 2001126681 EMBASE
TITLE: **Expression** and localization of serum/glucocorticoid-induced kinase in the rat ovary: Relation to follicular growth and differentiation.
AUTHOR: Alliston T.N.; Gonzalez-Robayna I.J.; Buse P.; Firestone G.L.; Richards J.S.
CORPORATE SOURCE: Dr. J.S. Richards, Department of Molecular Biology, Baylor College of Medicine, Houston, TX 77030, United States. joanner@bcm.tmc.edu
SOURCE: Endocrinology, (2000) 141/1 (385-395).
Refs: 54
ISSN: 0013-7227 CODEN: ENDOAO
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 003 Endocrinology
010 Obstetrics and Gynecology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB **Expression** of serum/glucocorticoid-inducible kinase (Sgk), one member of an inducible serine/threonine kinase family, is induced by FSH/cAMP in rat granulosa cells cultured in defined medium. The FSH-stimulated pattern of sgk **expression** is biphasic, and transcriptional activation of the sgk gene depends on an intact Sp1/Sp3 binding site within the proximal promoter. To determine whether sgk was **expressed** in a hormone-dependent and physiologically relevant manner in vivo, the cellular levels of sgk messenger RNA (mRNA) and protein as well as the subcellular localization of this kinase were analyzed in ovaries containing follicles and corpora lutea at specific stages of differentiation. To stimulate follicular development and luteinization, hypophysectomized (H) rats were treated with estradiol (E; HE) and FSH (FSH; HEF) followed by hCG (hCG; HEF/hCG). To analyze Sgk in functional corpora lutea, PRL was administered to HEF/hCG rats, or ovaries of pregnant rats were obtained on day 7, 15, or 22 of gestation. In situ hybridization indicated that sgk mRNA was low/undetectable in granulosa cells of H and HE rats. An acute in jection (iv) of FSH to HE rats rapidly increased sgk mRNA at 2 and 8 **h**. **Sgk** mRNA was also elevated in granulosa cells of preovulatory follicles of HEF rats and in luteal cells of HEF/hCG and pregnant rats. Northern blots and Western blots confirmed the in situ hybridization data, indicating that the amount and cellular localization Sgk protein were related to that of sgk mRNA. When the subcellular localization of this kinase was analyzed by immunohistochemistry, Sgk protein was nuclear in granulosa cells and some thecal cells of large preovulatory follicles. In contrast, Sgk protein was cytoplasmic in luteal cells as well as some cells within the stromal compartment. Intense immunostaining was also observed in oocytes present in primordial follicles, but not in growing follicles. Collectively, these results show that FSH and LH stimulate marked increases in the cellular content of Sgk, as well as dramatic changes in the subcellular distribution of this kinase. The specific nuclear vs. cytoplasmic

compartmentalization of Sgk in granulosa cells and luteal cells, respectively, indicates that Sgk controls distinct functions in proliferative vs. terminally differentiated granulosa cells.

L7 ANSWER 15 OF 24 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 2001067208 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11093030
TITLE: **h-sgk** serine-threonine protein **kinase** as transcriptional target of p38/MAP **kinase** pathway in HepG2 human hepatoma cells.
AUTHOR: Waldegger S; Gabrysch S; Barth P; Fillon S; Lang F
CORPORATE SOURCE: Institut fur Physiologie I, Gmelinstr. 5, D-72076 Tubingen, Germany.
SOURCE: Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology, (2000) 10 (4) 203-8.
Journal code: 9113221. ISSN: 1015-8987.
PUB. COUNTRY: Switzerland
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001222

AB The human serum and glucocorticoid dependent serine/threonine **kinase h-sgk** has previously been discovered as **cell volume regulated** gene. The present study has been performed to elucidate the involvement of p38-**kinase** in the transcriptional control of **h-sgk** by osmotic cell shrinkage. The p38-**kinase** has previously been **cloned** as the mammalian homologue of HOG1 **kinase**, which constitutes a part of the osmosensor in the yeast Saccharomyces cerevisiae. Phosphorylated (active) p38-**kinase** has been estimated with Western blotting, transcription of hsgk using Northern blotting. Both, increase of extracellular NaCl concentration by 50 mmol/l and addition of 10 micromol/l anisomycin increase phosphorylation of the p38-**kinase** within 5 to 10 minutes. **h-sgk** transcription is upregulated by addition of 50 mmol/l NaCl and by anisomycin (10 micromol/l), effects completely inhibited by the specific p38-**kinase** inhibitor, SB 203580 (10 micromol/l). In conclusion, the stimulation of **h-sgk** transcription by osmotic cell shrinkage is mediated by p38-**kinase**.

L7 ANSWER 16 OF 24 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 2001067206 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11093028
TITLE: The shrinkage-activated Na(+) conductance of rat hepatocytes and its possible correlation to rENaC.
AUTHOR: Bohmer C; Wagner C A; Beck S; Moschen I; Melzig J; Werner A; Lin J T; Lang F; Wehner F
CORPORATE SOURCE: Max-Planck-Institut fur molekulare Physiologie, Abteilung Epithelphysiologie, Otto-Hahn-Str. 11, 44227 Dortmund, Germany.
SOURCE: Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology, (2000) 10 (4) 187-94.
Journal code: 9113221. ISSN: 1015-8987.
PUB. COUNTRY: Switzerland
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012

ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001222

AB At moderate cell shrinkage, activation of Na(+) channels is the most prominent mechanism of regulatory cell volume increase in rat hepatocytes. The amiloride sensitivity of these channels suggests a relation to the family of epithelial Na(+) channels (ENaCs). The present study was performed to determine the pharmacological profile of shrinkage-activated Na(+) channels and to test for ENaC **expression** in primary cultures of rat hepatocytes; in addition, the influence of the **cell volume regulated** serine/threonine **kinase** hSGK on activity and pharmacological profile of rENaC was examined in Xenopus oocytes. Conventional electrophysiology in hepatocytes reveals that the shrinkage-activated Na(+) channel is inhibited by amiloride and EIPA with IC(50) values of 6.0 and 0.12 micromol/l, respectively. Western blots and RT-PCR demonstrate that rat hepatocytes do **express** all three subunits (alpha, beta, gamma) of ENaC. Coexpression of hSGK with rENaC in Xenopus oocytes reveals that the **kinase** stimulates ENaC by a factor of 4. Moreover, hSGK decreases the affinity to amiloride (increase of IC(50) from 0.12 to 0.26 micromol/l) and increases the affinity to EIPA (decrease of IC(50) from 250 to 50 micromol/l). In conclusion, rat hepatocytes **express** ENaC, which is activated by the cell volume-sensitive **kinase** hSGK. ENaC may contribute to the Na(+) channels activated by osmotic cell shrinkage in hepatocytes, whereby the relatively low amiloride and high EIPA sensitivity of the channel could at least be partially due to modification by SGK, which decreases the amiloride and increases the EIPA sensitivity of ENaC.

L7 ANSWER 17 OF 24 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 1999238882 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10220500
TITLE: **h-sgk** serine-threonine protein kinase gene as transcriptional target of transforming growth factor beta in human intestine.
AUTHOR: Waldegger S; Klingel K; Barth P; Sauter M; Rfer M L; Kandolf R; Lang F
CORPORATE SOURCE: Institute of Physiology, University of Tubingen, Tubingen, Germany.. florian.lang@uni-tuebingen.de
SOURCE: Gastroenterology, (1999 May) 116 (5) 1081-8.
Journal code: 0374630. ISSN: 0016-5085.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199906
ENTRY DATE: Entered STN: 19990618
Last Updated on STN: 20020420
Entered Medline: 19990607

AB BACKGROUND & AIMS: Recently, the immediate early gene **h-sgk** was **cloned** as a hypertonicity-induced gene from human hepatoma cells. The aim of this study was to localize **h-sgk** messenger RNA (mRNA) **expression** in normal and inflamed intestinal mucosa and to identify potential transcriptional regulators. METHODS: **h-sgk** mRNA in small intestinal mucosa from healthy persons and patients with Crohn's disease was determined by in situ hybridization. Transcriptional regulation was studied by Northern blot analysis of total RNA isolated from cultured human Intestine 407, U937, and HepG2 cells. RESULTS: In normal ileum, **h-sgk** mRNA was selectively localized to the apical villus enterocytes, whereas no staining was detected in crypt cells. In Crohn's disease, enterocytes of the crypts **expressed h-sgk** and abundant **h-sgk** positive

inflammatory cells appeared in the lamina propria. Combined **h-sgk** in situ hybridization and immunohistochemical analysis of CD68 antigen **expression** identified a part of these cells as macrophages. In addition to spatial correlation of transforming growth factor (TGF)-beta1 protein and **h-sgk** mRNA **expression**, **h-sgk** transcription in human Intestine 407 and HepG2 cells as well as in U937 monocytes/macrophages was strongly induced by TGF-beta1 in vitro. CONCLUSIONS: **h-sgk expression** in normal and inflamed intestinal mucosa may be regulated by TGF-beta1 and may contribute to the pleiotropic actions of TGF-beta1 in mucosal cell populations.

L7 ANSWER 18 OF 24 BIOTECHDS COPYRIGHT 2004 THE THOMSON CORP. on STN DUPLICATE 7

ACCESSION NUMBER: 1998-10366 BIOTECHDS
TITLE: New nucleic acid encoding cell-volume regulating kinase **h-sgk** and related proteins;
enzyme and protein used for diagnosis and therapy of condition related to cell-volume change
AUTHOR: Lang F; Waldegger S
PATENT ASSIGNEE: Dade-Behring-Marburg
LOCATION: Marburg, Germany.
PATENT INFO: EP 861896 2 Sep 1998
APPLICATION INFO: EP 1998-101338 27 Jan 1998
PRIORITY INFO: DE 1997-1008173 28 Feb 1997
DOCUMENT TYPE: Patent
LANGUAGE: German
OTHER SOURCE: WPI: 1998-449109 [39]

AB A nucleic acid (A) that encodes the human cell-volume regulating serum and glucocorticoid-dependent kinase (**h-sgk**) with a given 431 amino acid protein sequence is claimed. (A) has a given 2,370 bp nucleotide sequence. Also claimed are nucleic acids that hybridize with (A) under stringent conditions and encode an active cell-volume regulating kinase, the transcription of which is not induced by fetal cattle-serum or glucocorticoids. Alternatively it can encode a kinase that is not identical with rat-sgk. The claims also cover polynucleotide fragments consisting of bases 980-1,480 of the given sequence that encodes an immunogenic fragment of **h-sgk**. The claims extend to **recombinant h-sgk**, and receptors that specifically bind to **h-sgk**. The new nucleic acids are used to detect (A) by Northern blotting and hybridization. The protein **h-sgk** can be used to detect receptors which can be used to detect and quantify **h-sgk** in immunoassays. This has application in diagnosis and therapy of conditions associated with cell-volume changes, including hyper-and hypo-natriemia, diabetes mellitus, fructose intolerance, Alzheimer disease, etc. (15pp)

L7 ANSWER 19 OF 24 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN DUPLICATE 8

ACCESSION NUMBER: 1998305122 EMBASE
TITLE: **Cloning** of sgk serine-threonine protein **kinase** from shark rectal gland - A gene induced by hypertonicity and secretagogues.
AUTHOR: Waldegger S.; Barth P.; Forrest J.N. Jr.; Greger R.; Lang F.
CORPORATE SOURCE: S. Waldegger, Department of Physiology 1, University of Tubingen, Gmelinstr. 5, D-72076 Tubingen, Germany
SOURCE: Pflugers Archiv European Journal of Physiology, (1998) 436/4 (575-580).
Refs: 35
ISSN: 0031-6768 CODEN: PFLABK
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 002 Physiology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Recently, the **cell-volume-regulated** serine-threonine protein **kinase h- sgk** was **cloned** from a human hepatoma cell line. The sgk gene was shown to be induced by cell shrinkage in many different mammalian cell lines. In this study, two highly conserved serine-threonine protein **kinases**, sgk-1 and sgk- 2, were **cloned** from rectal gland tissue of the spiny dogfish (Squalus acanthias). Both **kinases** showed a distinct pattern of tissue specificity, with high **expression** levels in kidney, intestine, liver and heart. In rectal gland slices sgk-1 transcription was induced by exposure to hypertonic solution, reduction of the extracellular urea concentration, and addition of the secretagogues vasoactive intestinal polypeptide (VIP) and carbachol. The shark sgk-1 serine-threonine protein **kinase** may therefore provide a link between cell volume, Cl-secretion and protein phosphorylation state in shark rectal gland cells.

L7 ANSWER 20 OF 24 MEDLINE on STN DUPLICATE 9
ACCESSION NUMBER: 97272242 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9114008
TITLE: **Cloning** and characterization of a putative human serine/threonine protein kinase transcriptionally modified during anisotonic and isotonic alterations of cell volume.
AUTHOR: Waldegger S; Barth P; Raber G; Lang F
CORPORATE SOURCE: Physiologisches Institut I der Eberhard-Karls-Universitat, D-72076 Tubingen, Germany.
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1997 Apr 29) 94 (9) 4440-5. Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-Y10032
ENTRY MONTH: 199705
ENTRY DATE: Entered STN: 19970609
Last Updated on STN: 20020420
Entered Medline: 19970527
AB Hepatic metabolism and gene **expression** are among other regulatory mechanisms controlled by the cellular hydration state, which changes rapidly in response to anisotonicity, concentrative substrate uptake, oxidative stress, and under the influence of hormones such as insulin and glucagon. Differential screening for cell volume sensitive transcripts in a human hepatoma cell line revealed a gene for a putative serine/threonine kinase, **h-sgk**, which has 98% sequence identity to a serum- and glucocorticoid regulated kinase, sgk, **cloned** from a rat mammary tumor cell line. **h-sgk** transcript levels were strongly altered during anisotonic and isotonic cell volume changes. Within 30 min **h-sgk** RNA was, independent of de novo protein synthesis, induced upon cell shrinkage and, due to a complete stop in **h-sgk** transcription, reduced upon cell swelling. Comparable changes of sgk transcript levels were observed in a renal epithelial cell line. **h-sgk** mRNA was detected in all human tissues tested, with the highest levels in pancreas, liver, and heart. The putative serine/threonine protein kinase **h-sgk** may provide a functional link between the cellular hydration state and metabolic control.

L7 ANSWER 21 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 97:351585 SCISEARCH

THE GENUINE ARTICLE: WV421
TITLE: Urea inhibits the **expression** of a novel **cell volume regulated kinase** in HepG2-cells
AUTHOR: Raber G (Reprint); Waldegger S; Barth P; Lang F
CORPORATE SOURCE: UNIV TUBINGEN, D-72076 TUBINGEN, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY, (NOV-DEC 1997) Vol. 433, No. 6, Supp. [S], pp. P358-P358.
Publisher: SPRINGER VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010.
ISSN: 0031-6768.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

L7 ANSWER 22 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 1997:100646 BIOSIS
DOCUMENT NUMBER: PREV199799399849
TITLE: **Expression** and regulation of chloride channels in neonatal rat cardiomyocytes.
AUTHOR(S): Tilly, Ben C. [Reprint author]; Bezstarosti, Karel; Boomaars, Wendy E. M.; Marino, Christopher R.; Lamers, Jos M. J.; De Jonge, Hugo R.
CORPORATE SOURCE: Dep. Biochem., Med. Fac., Erasmus University, PO Box 1738, 3000 DR Rotterdam, Netherlands
SOURCE: Lamers, J. M. J. [Editor]; Verdouw, P. D. [Editor]. (1996) pp. 129-135. Developments in Molecular and Cellular Biochemistry, 17; Biochemistry of signal transduction in myocardium.
Publisher: Kluwer Academic Publishers, PO Box 989, 3300 AZ Dordrecht, Netherlands; Kluwer Academic Publishers, 101 Phillip Drive, Norwell, Massachusetts 02061, USA.
Meeting Info.: Satellite Symposium of the 15th World Congress of the International Society for Heart Research. Rotterdam, Netherlands. June 30-July 1, 1995.
ISBN: 0-7923-4067-1.
DOCUMENT TYPE: Book; (Book Chapter)
Conference; (Meeting Paper)
LANGUAGE: English
ENTRY DATE: Entered STN: 3 Mar 1997
Last Updated on STN: 3 Mar 1997

L7 ANSWER 23 OF 24 MEDLINE on STN DUPLICATE 10
ACCESSION NUMBER: 96323870 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8739239
TITLE: **Expression** and regulation of chloride channels in neonatal rat cardiomyocytes.
AUTHOR: Tilly B C; Bezstarosti K; Boomaars W E; Marino C R; Lamers J M; de Jonge H R
CORPORATE SOURCE: Department of Biochemistry, Faculty of Medicine and Health Sciences, Erasmus University Rotterdam, The Netherlands.
SOURCE: Molecular and cellular biochemistry, (1996 Apr 12-26) 157 (1-2) 129-35.
Journal code: 0364456. ISSN: 0300-8177.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961025
Last Updated on STN: 19980206

Entered Medline: 19961017

AB Using an 125I- efflux assay, we have studied the **expression** of various types of chloride channels in isolated neonatal rat cardiomyocytes. Three different classes of anion conductances were distinguished: (1) a Ca(2+)-sensitive Cl- conductance, triggered upon stimulation of the cells with endothelin-1 or Ca(2+)-ionophore; (2) a cAMP/protein **kinase** A-operated Cl- conductance, activated by addition of forskolin. This anion channel could be identified as the Cystic Fibrosis Transmembrane conductance Regulator (CFTR-CI- channel) by Western blotting as well as by its enhanced activity in cultures pretreated with the tyrosine **kinase** inhibitor genistein; (3) a distinct class of **cell volume-regulated** Cl- channels, potentiated in the presence of endothelin-1 or the phosphotyrosine phosphatase inhibitor pervanadate. The potential role of each class of Cl- channels in the generation and/or modulation of action potentials as well as in maintaining cell volume is discussed.

L7 ANSWER 24 OF 24 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 95:115826 SCISEARCH
THE GENUINE ARTICLE: QE655
TITLE: VOLUME-ACTIVATED CHLORIDE CURRENTS ASSOCIATED WITH THE MULTIDRUG-RESISTANCE P-GLYCOPROTEIN
AUTHOR: HIGGINS C F (Reprint)
CORPORATE SOURCE: UNIV OXFORD, JOHN RADCLIFFE HOSP, NUFFIELD DEPT CLIN BIOCHEM, OXFORD OX3 9DU, ENGLAND (Reprint); UNIV OXFORD, JOHN RADCLIFFE HOSP, INST MOLEC MED, OXFORD OX3 9DU, ENGLAND
COUNTRY OF AUTHOR: ENGLAND
SOURCE: JOURNAL OF PHYSIOLOGY-LONDON, (JAN 1995) Vol. 482P, pp. S31-S36.
ISSN: 0022-3751.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 40

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The ability to regulate volume is an important property of most, if not all cells. In epithelial cells, amongst others, cell volume-activated chloride channels are central to this response. The molecular identities of these channels are not yet known. **Expression** of the human multidrug resistance P-glycoprotein (P-gp) has been associated with **cell volume-regulated** chloride currents, although the nature of this association is the subject of debate. Recent data indicate that P-gp acts by regulating the activation of an endogenous channel protein. In this review, evidence associating P-gp with cell volume-activated chloride currents, and the possible mechanisms by which this might be achieved, are discussed.

=> d his

(FILE 'HOME' ENTERED AT 15:15:43 ON 23 SEP 2004)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 15:16:03 ON 23 SEP 2004

L1 41 S "H-SGK"
L2 73 S "CELL VOLUME-REGULATED"
L3 42 S L2 AND KINASE?
L4 67 S L1 OR L3
L5 6711850 S CLON? OR EXPRESS? OR RECOMBINANT
L6 58 S L4 AND L5
L7 24 DUP REM L6 (34 DUPLICATES REMOVED)

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E2            2     LANG EVERETT H/AU
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E4            2     LANG F */AU
E5           65     LANG F A/AU
E6            1     LANG F B/AU
E7           29     LANG F C/AU
E8            7     LANG F D/AU
E9          154     LANG F F/AU
E10           2     LANG F F JR/AU
E11           3     LANG F G/AU
E12          34     LANG F H/AU

=> s e3
L8         3294 "LANG F"/AU

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E1            6     WALDEGGER P/AU
E2            8     WALDEGGER PETRA/AU
E3          372 --> WALDEGGER S/AU
E4            1     WALDEGGER SIEGFREID/AU
E5            2     WALDEGGER SIEGFRID/AU
E6          135     WALDEGGER SIEGFRIED/AU
E7            2     WALDEGGER SIEGRIED/AU
E8            1     WALDEGGER W/AU
E9            1     WALDEGRAVE/AU
E10           2     WALDEGRAVE C/AU
E11           2     WALDEGRAVE M/AU
E12          18     WALDEGRAVE W/AU

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L9          512 ("WALDEGGER S"/AU OR "WALDEGGER SIEGFREID"/AU OR "WALDEGGER
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                /AU)

=> s l8 or l9
L10        3485 L8 OR L9

=> d his

     (FILE 'HOME' ENTERED AT 15:15:43 ON 23 SEP 2004)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 15:16:03 ON 23 SEP 2004
L1            41 S "H-SGK"
L2            73 S "CELL VOLUME-REGULATED"
L3            42 S L2 AND KINASE?
L4            67 S L1 OR L3
L5       6711850 S CLON? OR EXPRESS? OR RECOMBINANT
L6            58 S L4 AND L5
L7            24 DUP REM L6 (34 DUPLICATES REMOVED)
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L8          3294 S E3
                 E WALDEGGER S/AU
L9           512 S E3-E7
L10         3485 S L8 OR L9

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L11          52 L4 AND L10

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PROCESSING COMPLETED FOR L11
L12          21 DUP REM L11 (31 DUPLICATES REMOVED)
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L12 ANSWER 1 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2004:390716 SCISEARCH
THE GENUINE ARTICLE: 814KP
TITLE: Association of the serum and glucocorticoid regulated kinase (sgk1) gene with QT interval
AUTHOR: Busjahn A; Seebohm G; Maier G; Toliat M R; Nurnberg P; Aydin A; Luft F C (Reprint); **Lang F**
CORPORATE SOURCE: HELIOS Kliniken Berlin, Franz Volhard Clin, Wiltberg Str 50, D-13125 Berlin, Germany (Reprint); HELIOS Kliniken Berlin, Franz Volhard Clin, D-13125 Berlin, Germany; Humboldt Univ, Fac Med Charite, Max Delbruck Ctr Mol Med, Berlin, Germany; Univ Tubingen, Dept Physiol, D-72074 Tubingen, Germany; Max Delbruck Ctr Mol Med, Gene Mapping Ctr, Berlin, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: CELLULAR PHYSIOLOGY AND BIOCHEMISTRY, (APR 2004) Vol. 14, No. 3, pp. 135-142.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1015-8987.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 65
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The serum and glucocorticoid inducible kinase (SGK1) is well known to up-regulate the renal epithelial Na+ channel ENaC. Excessive SGK1 activity would be expected to cause renal Na+ retention and blood pressure increase. Certain polymorphisms of the SGK1 gene (E8CC/CT; 16CC) are indeed associated with moderately enhanced blood pressure. We have recently disclosed another function of SGK1, i.e. the stimulation of the slowly activating K+ channel KCNE1/KCNQ1. Among the functions of this channel is the repolarisation of cardiac myocytes. Accordingly, defective KCNE1 and/or KCNQ1 lead to long QT syndrome, a disorder causing fainting and sudden cardiac death. In the present study we demonstrate that coexpression of SGK1 in Xenopus oocytes increases KCNQ1/KCNE1 induced current without significantly altering voltage dependence, activation and deactivation kinetics. To test for the relevance of SGK1 in human cardiac repolarization, we analysed the ECG of monozygotic (MZ) (126 pairs) and dizygotic (DZ) (70 pairs) twin subjects and parents of DZ twins. The E8CC/CT;16CC polymorphism was indeed significantly ($p < 0.025$) associated with shortened age and gender corrected QT interval. No significant differences were observed in any other ECG parameter, including heart rate, P, PQ and QRS. We conclude that the regulation of KCNE1/KCNQ1 by SGK1 is similarly relevant for the repolarization of cardiac myocytes as for regulation of renal ENaC activity and blood pressure control.

L12 ANSWER 2 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2002:246823 SCISEARCH
THE GENUINE ARTICLE: 530ND
TITLE: Cerebral localization and regulation of the cell volume-sensitive serum- and glucocorticoid-dependent kinase SGK1
AUTHOR: Warntges S; Friedrich B; Henke G; Duranton C; Lang P A; **Waldegger S**; Meyermann R; Kuhl D; Speckmann E J; Obermuller N; Witzgall R; Mack A F; Wagner H J; Wagner C A; Broer S; **Lang F (Reprint)**
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol,

D-72076 Tubingen, Germany; Univ Tubingen, Dept Brain Res, D-72076 Tubingen, Germany; Univ Hamburg, Zentrum Mol Neurobiol, Hamburg, Germany; Univ Munster, Dept Physiol, D-4400 Munster, Germany; Univ Heidelberg, Dept Anat, D-6900 Heidelberg, Germany; Univ Tubingen, Dept Anat, D-72076 Tubingen, Germany; Yale Univ, Dept Cellular & Mol Physiol, New Haven, CT USA
COUNTRY OF AUTHOR: Germany; USA
SOURCE: PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY, (FEB 2002) Vol. 443, No. 4, pp. 617-624.
Publisher: SPRINGER-VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010 USA.
ISSN: 0031-6768.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 42

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The serum- and glucocorticoid-dependent kinase SGK1 is regulated by alterations of cell volume, whereby cell shrinkage increases and cell swelling decreases the transcription, expression and activity of SGK1. The kinase is expressed in all human tissues studied including the brain. The present study was performed to localize the sites of SGK1 transcription in the brain, to elucidate the influence of the hydration status on SGK1 transcription and to explore the functional significance of altered SGK1 expression. Northern blot analysis of human brain showed SGK1 to be expressed in all cerebral structures examined: amygdala, caudate nucleus, corpus callosum, hippocampus, substantia nigra, subthalamic nucleus and thalamus. In situ hybridization and immunohistochemistry in the rat revealed increased expression of SGK1 in neurons of the hippocampal area CA3 after dehydration, compared with similar slices from brains of euvolaemic rats. Additionally, several oligodendrocytes, a few microglial cells, but no astrocytes, were positive for SGK1. The abundance of SGK1 mRNA in the temporal lobe, including hippocampus, was increased by dehydration and SGK1 transcription in neuroblastoma cells was stimulated by an increase of extracellular osmolarity. Co-expression studies in Xenopus laevis oocytes revealed that SGK1 markedly increased the activity of the neuronal K+ channel Kv1.3. As activation of K+ channels modifies excitation of neuronal cells, SGK1 may participate in the regulation of neuronal excitability.

L12 ANSWER 3 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 2003:241577 SCISEARCH
THE GENUINE ARTICLE: 654HJ
TITLE: Activation of Na+/K+-ATPase by the serum and glucocorticoid-dependent kinase isoforms
AUTHOR: Henke G; Setiawan I; Bohmer C; **Lang F (Reprint)**
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol, D-72076 Tubingen, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: KIDNEY & BLOOD PRESSURE RESEARCH, (DEC 2002) Vol. 25, No. 6, pp. 370-374.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1420-4096.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 49

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Background/Aim: Expression of the constitutively active form of serum and glucocorticoid-dependent kinase ((S422D)SGK1) in Xenopus oocytes has recently been shown to upregulate endogenous Na+/K+-ATPase activity, an effect presumably participating in the regulation of cellular K+ uptake

and transepithelial Na+ transport. SGK1 and the two isoforms SGK2 and SGK3 are stimulated by insulin and insulin-like growth factor-1 (IGF-1), which have been shown to enhance Na+/K+-ATPase activity in a variety of cells. The present experiments have been performed to elucidate whether or not wild-type SGK1, SGK2 and SGK3 are similar to (S422D)SGK1 in being effective regulators of Na+/K+-ATPase. Methods: To this end, dual-electrode voltage clamp experiments were performed in Xenopus oocytes injected either with water or with mRNA of constitutively active (S422D)SGK1 and wild-type SGK1, SGK2 or SGK3. Na+/K+-ATPase activity was estimated from the outward-directed current created by readdition of extracellular K+ in the presence of K+ channel blocker Ba2+ following a 10-min exposure to K+-free extracellular fluid. Results: The outward-directed current was fully abolished by incubation with 1 mM ouabain and was significantly larger in oocytes expressing (S422D)SGK1, SGK1, SGK2 or SGK3, as compared to those injected with water. Conclusion: The stimulating effect of SGK1 on the Xenopus oocyte Na+/K+-ATPase is mimicked by the isoforms SGK2 and SGK3. Thus, all three kinases may participate in the regulation of Na+/K+-ATPase activity by hormones such as insulin and IGF-1. Copyright (C) 2002 S. Karger AG, Basel.

L12 ANSWER 4 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2002:289276 SCISEARCH
THE GENUINE ARTICLE: 536XJ
TITLE: Expression of the serine/threonine kinase hSGK1 in chronic viral hepatitis
AUTHOR: Fillon S; Klingel K; Warntges S; Sauter M; Gabrysch S; Pestel S; Tanneur V; **Waldegger S**; Zipfel A; Viebahn R; Broer S; Kandolf R; **Lang F (Reprint)**
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Dept Physiol, Gmelinstr 5, D-72076 Tubingen, Germany (Reprint); Univ Tubingen, Inst Physiol, Dept Physiol, D-72076 Tubingen, Germany; Univ Tubingen, Dept Mol Pathol, D-72076 Tubingen, Germany; Univ Dusseldorf, Dept Internal Med, D-4000 Dusseldorf, Germany; Univ Tubingen, Dept Surg, D-72076 Tubingen, Germany; Australian Natl Univ, Sch Biochem & Mol Biol, Canberra, ACT, Australia
COUNTRY OF AUTHOR: Germany; Australia
SOURCE: CELLULAR PHYSIOLOGY AND BIOCHEMISTRY, (DEC 2002) Vol. 12, No. 1, pp. 47-54.
Publisher: KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND.
ISSN: 1015-8987.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 37

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The human serine/threonine kinase hSGK1 is expressed ubiquitously with highest transcript levels in pancreas and liver. This study has been performed to determine the hSGK1 distribution in normal liver and its putative role in fibrosing liver disease. HSGK1-localization was determined by in situ hybridization, regulation of hSGK1-transcription by Northern blotting, fibronectin synthesis and hSGK1 phosphorylation by Western blotting. In normal liver hSGK1 was mainly transcribed by Kupffer cells. In liver tissue from patients with chronic viral hepatitis, hSGK1 transcript levels were excessively high in numerous activated Kupffer cells and inflammatory cells localized within fibrous septum formations. HSGK1 transcripts were also detected in activated hepatic stellate cells. Accordingly, Western blotting revealed that tissue from fibrotic liver expresses excessive hSGK1 protein as compared to normal liver. TGF-beta1 (2 ng/ml) increases hSGK1 transcription in both human U937 macrophages and HepG2 hepatoma cells. H2O2 (0.3 mM) activated hSGK1 and increased fibronectin formation in HepG2 cells overexpressing hSGK1 but not in HepG2 cells expressing the inactive mutant hSGK1(K127R). In conclusion hSGK1 is

upregulated by TGF-beta1 during hepatitis and may contribute to enhanced matrix formation during fibrosing liver disease. Copyright (C) 2002 S. Karger AG, Basel.

L12 ANSWER 5 OF 21 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2002:74113 BIOSIS
DOCUMENT NUMBER: PREV200200074113
TITLE: **Cell volume-regulated** human **kinase h-sgk.**
AUTHOR(S): Lang, Florian [Inventor, Reprint author]; **Waldegger, Siegfried** [Inventor]
CORPORATE SOURCE: Im Rotbad 52, 72076 Tubingen, Germany
PATENT INFORMATION: US 6326181 December 04, 2001
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Dec. 4, 2001) Vol. 1253, No. 1. ftp://ftp.uspto.gov/pub/patdata/. e-file. CODEN: OGUPE7. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English
ENTRY DATE: Entered STN: 16 Jan 2002
Last Updated on STN: 25 Feb 2002

AB The present invention relates to the cloning and characterization of a human serine/threonine **kinase** (**h-sgk**: serum and glucocorticoid dependent **kinase**). The invention furthermore relates to reagents for diagnosing conditions associated with a change in cell volume and/or in "macromolecular crowding" in the body, such as, for example, hypernatremia, hyponatremia, diabetes mellitus, renal failure, hypercatabolism, hepatic encephalopathy, inflammation and microbial or viral infections. The present invention additionally relates to pharmaceuticals comprising the **h-sgk**, nucleic acids which code for the **h-sgk**, or receptors, in particular antibodies, which specifically bind to the **h-sgk**.

L12 ANSWER 6 OF 21 MEDLINE on STN DUPLICATE 1

ACCESSION NUMBER: 2002179776 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11913450
TITLE: Serum- and glucocorticoid-dependent **kinase**, cell volume, and the regulation of epithelial transport.
AUTHOR: Fillon S; Warntges S; Matskevitch J; Moschen I; Setiawan I; Gamper N; Feng Y X; Stegen C; Friedrich B; **Waldegger S**; Broer S; Wagner C A; Huber S M; Klingel K; Vereninov A; **Lang F**
CORPORATE SOURCE: Department of Physiology, University of Tubingen, Germany.
SOURCE: Comparative biochemistry and physiology. Part A, Molecular & integrative physiology, (2001 Oct) 130 (3) 367-76. Ref: 99
Journal code: 9806096. ISSN: 1095-6433.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200204
ENTRY DATE: Entered STN: 20020401
Last Updated on STN: 20020614
Entered Medline: 20020418

AB Ample pharmacological evidence points to a role of **kinases** in the regulation of cell volume. Given the limited selectivity of most inhibitors, however, the specific molecules involved have remained largely elusive. The search for **cell volume regulated** genes in liver HepG2 cells led to the discovery of the human serum- and glucocorticoid-dependent serine/threonine **kinase** hsgk1.

Transcription and expression of hsgk1 is markedly and rapidly upregulated by osmotic and isotonic cell shrinkage. The effect of osmotic cell shrinkage on hsgk1 is mediated by p38 **kinase**. Further stimuli of hsgk1 transcription include glucocorticoids, aldosterone, TGF-beta1, serum, increase of intracellular Ca2+ and phorbolesters, whereas cAMP downregulates hsgk1 transcription. The hsgk1 protein is expressed in several epithelial tissues including human pancreas, intestine, kidney, and shark rectal gland. Co-expression of hsgk1 with the renal epithelial Na+-channel ENaC or the Na+/K+/2Cl(-)-cotransporter NKCC2 (BSC1) in Xenopus oocytes, accelerates insertion of the transport proteins into the cell membrane and thus, stimulates channel or transport activity. Thus, hsgk1 participates in the regulation of transport by steroids and secretagogues increasing intracellular Ca2+-activity. The stimulation of hsgk1 transcription by TGF-beta1 may further bear pathophysiological relevance.

L12 ANSWER 7 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2001:922107 SCISEARCH
THE GENUINE ARTICLE: 490MJ
TITLE: Cell volume regulatory mechanisms in progression of renal disease
AUTHOR: Warntges S; Gronė H J; Capasso G; **Lang F (Reprint)**
CORPORATE SOURCE: Univ Tubingen, Inst Physiol, Gmelinstr 5, D-76072 Tubingen, Germany (Reprint); Univ Tubingen, Dept Physiol, Tubingen, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: JOURNAL OF NEPHROLOGY, (SEP-OCT 2001) Vol. 14, No. 5, pp. 319-326.
Publisher: WICHTIG EDITORE, 72/74 VIA FRIULI, 20135 MILAN, ITALY.
ISSN: 1121-8428.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English
REFERENCE COUNT: 125

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB One of the striking morphological features of renal failure is an increase of cell volume. This review explores the role of cell volume regulatory mechanisms in the pathophysiology of progressive renal disease. The case is made that TGF-beta, a major cytokine involved in the development of progressive renal failure, upregulates the transcription of the serum and glucocorticoid-dependent kinase hSGK1,involved in cell volume regulation. Excessive extracellular glucose concentrations stimulate TGF-beta1 expression and thus similarly enhance hSGK1-transcription. The kinase stimulates two mechanisms important for cell volume regulation, i.e. the renal epithelial Na+ channel ENaC and the thick ascending limb Na+,K+,2Cl(-) cotransporter BSC1. On the one hand, stimulation of renal tubular transport leads to renal retention of Na+, which favours the development of hypertension. On the other, the increase of cell volume stimulates protein synthesis and inhibits protein degradation, contributing to the enhanced net formation and deposition of matrix proteins. At later stages, the increase of cell volume may be reversed to atrophy, and cell death may lead to loss of functional tissue. In conclusion, progressive renal disease is paralleled by deranged cell volume regulatory mechanisms.

L12 ANSWER 8 OF 21 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2001:244741 BIOSIS
DOCUMENT NUMBER: PREV200100244741
TITLE: All three isoforms of human serum and glucocorticoid dependent kinase (**h-SGK**) upregulate voltage-gated potassium channels endogenously expressed in HEK293 cells.

AUTHOR(S): Fillon, S. [Reprint author]; Gamper, N. [Reprint author]; Huber, S. M. [Reprint author]; Feng, Y. X. [Reprint author]; Friedrich, B. [Reprint author]; Kobayashi, T.; Cohen, P.; **Lang, F.** [Reprint author]
CORPORATE SOURCE: Institute of Physiology, University of Tuebingen, Tuebingen, Germany
SOURCE: Pfluegers Archiv European Journal of Physiology, (2001) Vol. 441, No. 6 Supplement, pp. R182. print.
Meeting Info.: Joint Congress of the Scandinavian and the German Physiological Societies. Berlin, Germany. March 10-13, 2001.
CODEN: PFLABK. ISSN: 0031-6768.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)
LANGUAGE: English
ENTRY DATE: Entered STN: 23 May 2001
Last Updated on STN: 19 Feb 2002

L12 ANSWER 9 OF 21 LIFESCI COPYRIGHT 2004 CSA on STN
ACCESSION NUMBER: 2002:78612 LIFESCI
TITLE: **Cell volume-regulated** human **kinase h-sgk**
AUTHOR: **Lang, F.; Waldegger, S.**
SOURCE: (20011204) . US Patent: 6326181; US CLASS: 435/194; 424/94.5.
DOCUMENT TYPE: Patent
FILE SEGMENT: W3
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The present invention relates to the cloning and characterization of a human serine/threonine **kinase** (**h-sgk**: serum and glucocorticoid dependent **kinase**). The invention furthermore relates to reagents for diagnosing conditions associated with a change in cell volume and/or in "macromolecular crowding" in the body, such as, for example, hypernatremia, hyponatremia, diabetes mellitus, renal failure, hypercatabolism, hepatic encephalopathy, inflammation and microbial or viral infections. The present invention additionally relates to pharmaceuticals comprising the **h-sgk**, nucleic acids which code for the **h-sgk**, or receptors, in particular antibodies, which specifically bind to the **h-sgk**.

L12 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:756527 HCAPLUS
DOCUMENT NUMBER: 133:325643
TITLE: Antifibrotic formulations containing inhibitors of **cell-volume-regulated** human **kinase h-sgk**
INVENTOR(S): Lang, Florian; **Waldegger, Siegfried**; Wagner, Carsten; Broer, Stefan; Klingel, Karin
PATENT ASSIGNEE(S): Germany
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000062781	A1	20001026	WO 2000-EP3578	20000419

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,

MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

DE 19917990	A1	20001102	DE 1999-19917990	19990420
BR 2000009914	A	20020108	BR 2000-9914	20000419
EP 1171131	A1	20020116	EP 2000-922655	20000419
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002542196	T2	20021210	JP 2000-611917	20000419
NO 2001005054	A	20011214	NO 2001-5054	20011017
ZA 2001008610	A	20020102	ZA 2001-8610	20011019
PRIORITY APPLN. INFO.:			DE 1999-19917990 A	19990420
			WO 2000-EP3578 W	20000419

AB The invention relates to medicaments which contain inhibitors or activators of **cell-vol.-regulated** human serum and glucocorticoid-dependent **kinase h-sgk**, a serine-threonine **kinase**. Medicaments of this type containing staurosporin or chelerythrine are suitable for treating conditions, such as fibrosis, in which an increased or reduced expression of **h-sgk** is identified.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 11 OF 21 MEDLINE on STN DUPLICATE 2

ACCESSION NUMBER: 2001034894 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11052997
TITLE: Expression of **cell volume-regulated kinase h-sgk** in pancreatic tissue.
AUTHOR: Klingel K; Warntges S; Bock J; Wagner C A; Sauter M; **Waldegger S**; Kandolf R; **Lang F**
CORPORATE SOURCE: Department of Molecular Pathology, Institute of Pathology, University of Tubingen, D-72076, Tubingen, Germany.
SOURCE: American journal of physiology. Gastrointestinal and liver physiology, (2000 Nov) 279 (5) G998-G1002. Journal code: 100901227. ISSN: 0193-1857.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001130

AB Transcript levels of the human serine/threonine **kinase h-sgk** have been found to be highest in pancreas. In the present study, localization and regulation of **h-sgk** transcription in pancreatic tissue were elucidated. As was apparent from radioactive in situ hybridization, most pancreatic acinar cells expressed high levels of **h-sgk** mRNA. **h-sgk** mRNA-positive cells were also found in ductal epithelia but not in pancreatic islets. In biopsy specimens from patients with pancreatitis, **h-sgk** mRNA levels were decreased in acinar cells but abundant in numerous mononuclear interstitial cells within areas of pancreatic necrosis and fibrosis. As shown by Northern blotting, **h-sgk** transcription in DAN-G pancreatic tumor cells is upregulated by osmotic cell shrinkage, serum, phorbol esters (phorbol 12,13-didecanoate), and Ca(2+) ionophore A-23187 and decreased by staurosporine and cAMP. In conclusion, **h-sgk** transcription is regulated not only by cell volume but also by serum, protein **kinase** C stimulation, cAMP, and increase of

intracellular Ca(2+) activity. The **kinase** may participate not only in normal function of exocrine pancreas but also in fibrosing pancreatitis.

L12 ANSWER 12 OF 21 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 2001032616 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10898530
TITLE: Effect of urea and osmotic cell shrinkage on Ca2+ entry and contraction of vascular smooth muscle cells.
AUTHOR: Wagner C A; Huber S M; Warntges S; Zempel G; Kaba N K; Fux R; Orth N; Busch G L; **Waldegger S**; Lambert I; Nilius B; Heinle H; **Lang F**
CORPORATE SOURCE: Physiologisches Institut, der Universitat Tubingen, Germany.
SOURCE: Pflugers Archiv : European journal of physiology, (2000 Jun) 440 (2) 295-301.
Journal code: 0154720. ISSN: 0031-6768.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001130

AB The present study was performed to elucidate the effects of urea on vascular smooth muscle cells (SMC). Addition of urea (20, 50, 100 mM) to physiological salt solution blunted the vasoconstrictory effect of phenylephrine (by 17, 25 and 30%, respectively) and of an increased extracellular K+ concentration (by 7, 14 and 19%, respectively) without affecting the basal tone of rabbit arterial rings. According to Fura-2 fluorescence in cultured SMC (A7r5), urea had no effect on basal intracellular calcium activity ([Ca2+]i), but significantly blunted the increase of [Ca2+]i following an increase of extracellular K+. Whole-cell patch-clamp studies revealed that the Ca2+ current through voltage-sensitive Ca2+ channels is significantly inhibited in the presence of urea. As evident from calcein fluorescence, addition of urea leads to sustained cell shrinkage. The effects of urea on vascular tone, [Ca2+]i activity, voltage-gated Ca2+ channels and cell volume are mimicked by addition of raffinose or NaCl. However, the cell shrinkage induced by urea is sustained, whereas the addition of equiosmolar NaCl is only transient and followed by a regulatory cell volume increase. Moreover, hypertonic NaCl increases, whereas urea decreases, the transcription of **cell-volume-regulated kinase** hsgk.
In conclusion, urea leads to sustained shrinkage of vascular smooth muscle cells, which is followed by inhibition of voltage-gated Ca2+ channels, a decrease of [Ca2+]i and thus blunts the vasoconstrictory action of phenylephrine and increased extracellular K+ concentration.

L12 ANSWER 13 OF 21 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 2001067208 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11093030
TITLE: **h-sgk** serine-threonine protein **kinase** as transcriptional target of p38/MAP **kinase** pathway in HepG2 human hepatoma cells.
AUTHOR: **Waldegger S**; Gabrysch S; Barth P; Fillon S; **Lang F**
CORPORATE SOURCE: Institut fur Physiologie I, Gmelinstr. 5, D-72076 Tubingen, Germany.
SOURCE: Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology, (2000) 10 (4) 203-8.
Journal code: 9113221. ISSN: 1015-8987.
PUB. COUNTRY: Switzerland

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001222

AB The human serum and glucocorticoid dependent serine/threonine **kinase h-sgk** has previously been discovered as **cell volume regulated** gene. The present study has been performed to elucidate the involvement of p38-**kinase** in the transcriptional control of **h-sgk** by osmotic cell shrinkage. The p38-**kinase** has previously been cloned as the mammalian homologue of HOG1 **kinase**, which constitutes a part of the osmosensor in the yeast Saccharomyces cerevisiae. Phosphorylated (active) p38-**kinase** has been estimated with Western blotting, transcription of hsgk using Northern blotting. Both, increase of extracellular NaCl concentration by 50 mmol/l and addition of 10 micromol/l anisomycin increase phosphorylation of the p38-**kinase** within 5 to 10 minutes. **h-sgk** transcription is upregulated by addition of 50 mmol/l NaCl and by anisomycin (10 micromol/l), effects completely inhibited by the specific p38-**kinase** inhibitor, SB 203580 (10 micromol/l). In conclusion, the stimulation of **h-sgk** transcription by osmotic cell shrinkage is mediated by p38-**kinase**.

L12 ANSWER 14 OF 21 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 2001067206 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11093028
TITLE: The shrinkage-activated Na(+) conductance of rat hepatocytes and its possible correlation to rENaC.
AUTHOR: Bohmer C; Wagner C A; Beck S; Moschen I; Melzig J; Werner A; Lin J T; **Lang F**; Wehner F
CORPORATE SOURCE: Max-Planck-Institut fur molekulare Physiologie, Abteilung Epithelphysiologie, Otto-Hahn-Str. 11, 44227 Dortmund, Germany.
SOURCE: Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology, (2000) 10 (4) 187-94.
Journal code: 9113221. ISSN: 1015-8987.
PUB. COUNTRY: Switzerland
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20020420
Entered Medline: 20001222

AB At moderate cell shrinkage, activation of Na(+) channels is the most prominent mechanism of regulatory cell volume increase in rat hepatocytes. The amiloride sensitivity of these channels suggests a relation to the family of epithelial Na(+) channels (ENaCs). The present study was performed to determine the pharmacological profile of shrinkage-activated Na(+) channels and to test for ENaC expression in primary cultures of rat hepatocytes; in addition, the influence of the **cell volume regulated** serine/threonine **kinase** hSGK on activity and pharmacological profile of rENaC was examined in Xenopus oocytes. Conventional electrophysiology in hepatocytes reveals that the shrinkage-activated Na(+) channel is inhibited by amiloride and EIPA with IC(50) values of 6.0 and 0.12 micromol/l, respectively. Western blots and RT-PCR demonstrate that rat hepatocytes do express all three subunits (alpha, beta, gamma) of ENaC. Coexpression of hSGK with rENaC in Xenopus oocytes reveals that the **kinase** stimulates ENaC by a factor of

4. Moreover, hSGK decreases the affinity to amiloride (increase of IC(50) from 0.12 to 0.26 micromol/l) and increases the affinity to EIPA (decrease of IC(50) from 250 to 50 micromol/l). In conclusion, rat hepatocytes express ENaC, which is activated by the cell volume-sensitive **kinase** hSGK. ENaC may contribute to the Na(+) channels activated by osmotic cell shrinkage in hepatocytes, whereby the relatively low amiloride and high EIPA sensitivity of the channel could at least be partially due to modification by SGK, which decreases the amiloride and increases the EIPA sensitivity of ENaC.

L12 ANSWER 15 OF 21 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 1999238882 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10220500
TITLE: **h-sgk** serine-threonine protein kinase gene as transcriptional target of transforming growth factor beta in human intestine.
AUTHOR: **Waldegger S**; Klingel K; Barth P; Sauter M; Rfer M L; Kandolf R; **Lang F**
CORPORATE SOURCE: Institute of Physiology, University of Tubingen, Tubingen, Germany.. florian.lang@uni-tuebingen.de
SOURCE: Gastroenterology, (1999 May) 116 (5) 1081-8. Journal code: 0374630. ISSN: 0016-5085.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199906
ENTRY DATE: Entered STN: 19990618
Last Updated on STN: 20020420
Entered Medline: 19990607

AB BACKGROUND & AIMS: Recently, the immediate early gene **h-sgk** was cloned as a hypertonicity-induced gene from human hepatoma cells. The aim of this study was to localize **h-sgk** messenger RNA (mRNA) expression in normal and inflamed intestinal mucosa and to identify potential transcriptional regulators. METHODS: **h-sgk** mRNA in small intestinal mucosa from healthy persons and patients with Crohn's disease was determined by in situ hybridization. Transcriptional regulation was studied by Northern blot analysis of total RNA isolated from cultured human Intestine 407, U937, and HepG2 cells. RESULTS: In normal ileum, **h-sgk** mRNA was selectively localized to the apical villus enterocytes, whereas no staining was detected in crypt cells. In Crohn's disease, enterocytes of the crypts expressed **h-sgk** and abundant **h-sgk** positive inflammatory cells appeared in the lamina propria. Combined **h-sgk** in situ hybridization and immunohistochemical analysis of CD68 antigen expression identified a part of these cells as macrophages. In addition to spatial correlation of transforming growth factor (TGF)-beta1 protein and **h-sgk** mRNA expression, **h-sgk** transcription in human Intestine 407 and HepG2 cells as well as in U937 monocytes/macrophages was strongly induced by TGF-beta1 in vitro. CONCLUSIONS: **h-sgk** expression in normal and inflamed intestinal mucosa may be regulated by TGF-beta1 and may contribute to the pleiotropic actions of TGF-beta1 in mucosal cell populations.

L12 ANSWER 16 OF 21 BIOSIS on STN
ACCESSION NUMBER: 1999:527010 BIOSIS
DOCUMENT NUMBER: PREV199900527010
TITLE: Cell volume regulatory kinase **h-sgk** in the pathophysiology of diabetic nephropathy.
AUTHOR(S): Lang, Florian [Reprint author]; Wagner, Carsten A. [Reprint author]; Broer, Stefan [Reprint author]; Melzig, Joerg

[Reprint author]; **Waldegger, Siegfried** [Reprint author]; Steuer, Silvia; Lanzendorfer, Martina; Klingel, Karin; Kandolf, Reinhard; Heidland, August; Capasso, Giovambattista; Massry, Shaul G.; Risler, Teut

CORPORATE SOURCE: Department of Physiology, University of Tuebingen, Tuebingen, Germany

SOURCE: Journal of the American Society of Nephrology, (Sept., 1999) Vol. 10, No. PROGRAM AND ABSTR. ISSUE, pp. 685A. print.
Meeting Info.: 32nd Annual Meeting of the American Society of Nephrology. Miami Beach, Florida, USA. November 1-8, 1999. American Society of Nephrology.
CODEN: JASNEU. ISSN: 1046-6673.

DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)

LANGUAGE: English

ENTRY DATE: Entered STN: 10 Dec 1999
Last Updated on STN: 10 Dec 1999

L12 ANSWER 17 OF 21 BIOTECHDS COPYRIGHT 2004 THE THOMSON CORP. on STN DUPLICATE 7

ACCESSION NUMBER: 1998-10366 BIOTECHDS

TITLE: New nucleic acid encoding cell-volume regulating kinase **h-sgk** and related proteins;
enzyme and protein used for diagnosis and therapy of condition related to cell-volume change

AUTHOR: **Lang F; Waldegger S**

PATENT ASSIGNEE: Dade-Behring-Marburg

LOCATION: Marburg, Germany.

PATENT INFO: EP 861896 2 Sep 1998

APPLICATION INFO: EP 1998-101338 27 Jan 1998

PRIORITY INFO: DE 1997-1008173 28 Feb 1997

DOCUMENT TYPE: Patent

LANGUAGE: German

OTHER SOURCE: WPI: 1998-449109 [39]

AB A nucleic acid (A) that encodes the human cell-volume regulating serum and glucocorticoid-dependent kinase (**h-sgk**) with a given 431 amino acid protein sequence is claimed. (A) has a given 2,370 bp nucleotide sequence. Also claimed are nucleic acids that hybridize with (A) under stringent conditions and encode an active cell-volume regulating kinase, the transcription of which is not induced by fetal cattle-serum or glucocorticoids. Alternatively it can encode a kinase that is not identical with rat-sgk. The claims also cover polynucleotide fragments consisting of bases 980-1,480 of the given sequence that encodes an immunogenic fragment of **h-sgk**. The claims extend to recombinant **h-sgk**, and receptors that specifically bind to **h-sgk**. The new nucleic acids are used to detect (A) by Northern blotting and hybridization. The protein **h-sgk** can be used to detect receptors which can be used to detect and quantify **h-sgk** in immunoassays. This has application in diagnosis and therapy of conditions associated with cell-volume changes, including hyper-and hypo-natriemia, diabetes mellitus, fructose intolerance, Alzheimer disease, etc. (15pp)

L12 ANSWER 18 OF 21 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN DUPLICATE 8

ACCESSION NUMBER: 1998305122 EMBASE

TITLE: Cloning of sgk serine-threonine protein **kinase** from shark rectal gland - A gene induced by hypertonicity and secretagogues.

AUTHOR: **Waldegger S.**; Barth P.; Forrest J.N. Jr.; Greger R.; **Lang F.**

CORPORATE SOURCE: S. Waldegger, Department of Physiology 1, University of Tubingen, Gmelinstr. 5, D-72076 Tubingen, Germany.
SOURCE: Pflugers Archiv European Journal of Physiology, (1998) 436/4 (575-580).
Refs: 35
ISSN: 0031-6768 CODEN: PFLABK
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 002 Physiology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Recently, the **cell-volume-regulated** serine-threonine protein **kinase h- sgk** was cloned from a human hepatoma cell line. The sgk gene was shown to be induced by cell shrinkage in many different mammalian cell lines. In this study, two highly conserved serine-threonine protein **kinases**, sgk-1 and sgk- 2, were cloned from rectal gland tissue of the spiny dogfish (Squalus acanthias). Both **kinases** showed a distinct pattern of tissue specificity, with high expression levels in kidney, intestine, liver and heart. In rectal gland slices sgk-1 transcription was induced by exposure to hypertonic solution, reduction of the extracellular urea concentration, and addition of the secretagogues vasoactive intestinal polypeptide (VIP) and carbachol. The shark sgk-1 serine-threonine protein **kinase** may therefore provide a link between cell volume, Cl-secretion and protein phosphorylation state in shark rectal gland cells.

L12 ANSWER 19 OF 21 MEDLINE on STN DUPLICATE 9
ACCESSION NUMBER: 97272242 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9114008
TITLE: Cloning and characterization of a putative human serine/threonine protein kinase transcriptionally modified during anisotonic and isotonic alterations of cell volume.
AUTHOR: **Waldegger S**; Barth P; Raber G; **Lang F**
CORPORATE SOURCE: Physiologisches Institut I der Eberhard-Karls-Universitat, D-72076 Tubingen, Germany.
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1997 Apr 29) 94 (9) 4440-5.
Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-Y10032
ENTRY MONTH: 199705
ENTRY DATE: Entered STN: 19970609
Last Updated on STN: 20020420
Entered Medline: 19970527

AB Hepatic metabolism and gene expression are among other regulatory mechanisms controlled by the cellular hydration state, which changes rapidly in response to anisotonicity, concentrative substrate uptake, oxidative stress, and under the influence of hormones such as insulin and glucagon. Differential screening for cell volume sensitive transcripts in a human hepatoma cell line revealed a gene for a putative serine/threonine kinase, **h-sgk**, which has 98% sequence identity to a serum- and glucocorticoid regulated kinase, sgk, cloned from a rat mammary tumor cell line. **h-sgk** transcript levels were strongly altered during anisotonic and isotonic cell volume changes. Within 30 min **h-sgk** RNA was, independent of de novo protein synthesis, induced upon cell shrinkage and, due to a complete stop in **h-sgk** transcription, reduced upon cell swelling. Comparable changes of sgk transcript levels were observed in a renal epithelial cell line. **h-sgk** mRNA was detected in all human tissues tested,

with the highest levels in pancreas, liver, and heart. The putative serine/threonine protein kinase **h-sgk** may provide a functional link between the cellular hydration state and metabolic control.

L12 ANSWER 20 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 97:351585 SCISEARCH
THE GENUINE ARTICLE: WV421
TITLE: Urea inhibits the expression of a novel **cell volume regulated kinase** in HepG2-cells
AUTHOR: Raber G (Reprint); **Waldegger S**; Barth P; **Lang F**
CORPORATE SOURCE: UNIV TUBINGEN, D-72076 TUBINGEN, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY, (NOV-DEC 1997) Vol. 433, No. 6, Supp. [S], pp. P358-P358. Publisher: SPRINGER VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010. ISSN: 0031-6768.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

L12 ANSWER 21 OF 21 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
ACCESSION NUMBER: 97:351584 SCISEARCH
THE GENUINE ARTICLE: WV421
TITLE: **h-sgk**, a novel human serine threonine protein kinase, is transcriptionally controlled by cell volume
AUTHOR: **Waldegger S (Reprint)**; Raber G; Sailer E; Barth P; **Lang F**
CORPORATE SOURCE: UNIV TUBINGEN, D-72076 TUBINGEN, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY, (NOV-DEC 1997) Vol. 433, No. 6, Supp. [S], pp. P357-P357. Publisher: SPRINGER VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010. ISSN: 0031-6768.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

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(FILE 'HOME' ENTERED AT 15:15:43 ON 23 SEP 2004)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 15:16:03 ON 23 SEP 2004

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L1          41 S "H-SGK"
L2          73 S "CELL VOLUME-REGULATED"
L3          42 S L2 AND KINASE?
L4          67 S L1 OR L3
L5     6711850 S CLON? OR EXPRESS? OR RECOMBINANT
L6          58 S L4 AND L5
L7          24 DUP REM L6 (34 DUPLICATES REMOVED)
               E LANG F/AU
L8        3294 S E3
               E WALDEGGER S/AU
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L9           512 S E3-E7
L10         3485 S L8 OR L9
L11           52 S L4 AND L10
L12           21 DUP REM L11 (31 DUPLICATES REMOVED)
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	Issue Date	Pages	Document ID	Title
1	20040304	397	US 20040043930 A1	Novel proteins and nucleic acids encoding same
2	20030102	20	US 20030003559 A1	Cell volume-regulated human kinase h-sgk
3	20011004	15	US 20010027184 A1	Serine/threonine protein kinase (H-SGK2)
4	20011204	19	US 6326181 B1	Cell volume-regulated human kinase h-sgk

	Issue Date	Pages	Document ID	Title
1	20040701	195	US 20040126784 A1	Modulators of cellular proliferation
2	20040226	9	US 20040038882 A1	Sgk2 and sgk3 used as diagnostic and therapeutic targets
3	20040226	57	US 20040037829 A1	Interleukin-18 binding proteins, their preparation and use
4	20040115	260	US 20040009553 A1	Novel 27411, 23413, 22438, 23553, 25278, 26212, NARC SC1, NARC 10A, NARC 1, NARC 12, NARC 13, NARC17, NARC 25, NARC 3, NARC 4, NARC 7, NARC 8, NARC 11, NARC 14A, NARC 15, NARC 16, NARC 19, NARC 20, NARC 26, NARC 27, NARC 28, NARC 30, NARC 5, NARC 6, NARC 9, NARC 10C, NARC 8B, NARC 9, NARC2A, NARC 16B, NARC 1C, NARC1A, NARC 25, 86604 and 32222 molecules and uses therefor
5	20031016	26	US 20030195138 A1	BAP-1: methods of assaying for cell-cycle modulators
6	20030925	8	US 20030181351 A1	Spatial learning and memory
7	20030904	17	US 20030166025 A1	Antiproliferative Sgk reagents and methods
8	20030501	57	US 20030083733 A1	Therapeutic inhibitor of vascular smooth muscle cells
9	20030206	41	US 20030027756 A1	SAK: modulation of cellular proliferation for treatment of cancer

	Issue Date	Pages	Document ID	Title
10	20030206	243	US 20030027132 A1	Secreted Protein HODAZ50
11	20030102	20	US 20030003559 A1	Cell volume-regulated human kinase h-sgk
12	20021219	15	US 20020192186 A1	Gene therapy for pulmonary edema using adenovirus vectors encoding Na,K-ATPase
13	20021107	240	US 20020164669 A1	Secreted protein HRGDF73
14	20020530	46	US 20020065325 A1	Use of CLC3 chloride channel blockers to modulate vascular tone
15	20020404	56	US 20020040064 A1	Therapeutic inhibitor of vascular smooth muscle cells
16	20020131	64	US 20020013275 A1	Therapeutic inhibitor of vascular smooth muscle cells
17	20011004	15	US 20010027184 A1	Serine/threonine protein kinase (H-SGK2)
18	20040608	34	US 6747133 B1	Antibodies against the tumor suppressor gene ING1

	Issue Date	Pages	Document ID	Title
19	20030812	56	US 6605280 B1	Interleukin-18 binding proteins, their preparation and use for blocking the activity of IL-18
20	20030729	61	US 6599928 B2	Therapeutic inhibitor of vascular smooth muscle cells
21	20030708	228	US 6590075 B2	Secreted protein HODAZ50
22	20030204		US 6515009 B1	Therapeutic inhibitor of vascular smooth muscle cells
23	20020709		US 6416759 B1	Antiproliferative Sgk reagents and methods

	Issue Date	Pages	Document ID	Title
24	20020226		US 6350444 B1	Gene therapy for pulmonary edema using adenovirus vectors encoding Na,K-ATPase
25	20011204	19	US 6326181 B1	Cell volume-regulated human kinase h-sgk
26	20010731		US 6268390 B1	Therapeutic inhibitor of vascular smooth muscle cells
27	20010403		US 6210883 B1	Compounds and methods for diagnosis of lung cancer
28	20010109		US 6171609 B1	Therapeutic inhibitor of vascular smooth muscle cells
29	20000613		US 6074659 A	Therapeutic inhibitor of vascular smooth muscle cells
30	20000229		US 6030956 A	Combination gene therapy for human cancers
31	19980922		US 5811447 A	Therapeutic inhibitor of vascular smooth muscle cells
32	19980331		US 5733925 A	Therapeutic inhibitor of vascular smooth muscle cells
33	19940719		US 5330744 A	Method for increasing sensitivity to chemically induced terminal differentiation

	Issue Date	Pages	Document ID	Title
1	20040304	397	US 20040043930 A1	Novel proteins and nucleic acids encoding same
2	20040226	9	US 20040038882 A1	Sgk2 and sgk3 used as diagnostic and therapeutic targets
3	20030925	8	US 20030181351 A1	Spatial learning and memory
4	20030904	17	US 20030166025 A1	Antiproliferative Sgk reagents and methods
5	20030102	20	US 20030003559 A1	Cell volume-regulated human kinase h-sgk
6	20020530	46	US 20020065325 A1	Use of CLC3 chloride channel blockers to modulate vascular tone
7	20011004	15	US 20010027184 A1	Serine/threonine protein kinase (H-SGK2)
8	20020709	18	US 6416759 B1	Antiproliferative Sgk reagents and methods
9	20011204	19	US 6326181 B1	Cell volume-regulated human kinase h-sgk
10	20010403	45	US 6210883 B1	Compounds and methods for diagnosis of lung cancer

	L #	Hits	Search Text
1	L1	0	volume adj regult$3
2	L2	4	"h-sgk"
3	L3	51589	kinase$2
4	L4	4824	cell adj volume
5	L5	64	l3 same l4
6	L6	661913	clon$3 or express$3 or recombinant
7	L7	33	l5 same l6
8	L8	19770	LANG WALDEGGER
9	L9	34	l2 or l7
10	L10	10	l8 and l9